



## CLAIMS

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Having thus described my invention, what I claim as new and desire to secure by Letters Patent is as follows:

A method of measuring overlay alignment of 1 1. 2 sequential lithographic exposures, said method 3 including steps of

forming first separated features on a surface,

forming second separated features on said surface interleaved between said first separated features, and

illuminating said first and second separated features and detecting an interference pattern.

- A method as recited in claim 1, including the 1 2.
- further step of calculating a spectrographic 2
- response corresponding to said interference 3
- pattern. 4

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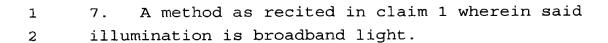
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- A method as recited in claim 1, wherein said 1
- illuminating and detecting step is performed with 2
- a specular spectroscopic scatterometer. 3
- A method as recited in claim 3 wherein said 1
- scatterometer is of the reflectometer type. 2
- A method as recited in claim 3 wherein said 1
- scatterometer is of the ellipsometer type. 2
- A method as recited in claim 5, wherein said 1
- ellipsometer measures complex reflectivity 2
- 3 spectral ratio for two orthogonal polarizations
- with broadband illumination. 4



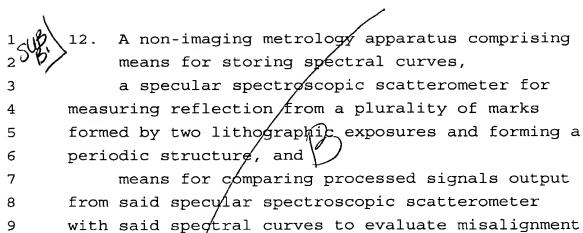
- 8. A metod as recited in claim 1 wherein said detection measures amplitude and phase.
- 9. A method as recited in claim 1, wherein said illumination and detection step results in measured spectral curves and including the further steps of

modelling said first and second features by simulation to obtain simulated spectral curves,

7 and

- comparing said measured spectral curves with said simulated spectral curves.
- 1 10. A method as recited in claim 9, wherein said 2 comparing step includes use of an optimization 3 technique to determine best fit and to quantify a 4 misalignment value.
- 1 11. A test mark including
- a plurality of marks formed by a lithographicexposure,
- a mark formed between said plurality of marks by another lithographic exposure,
- said mark and said plurality of marks forming a periodic structure.

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of said two lithographic exposures.